

Interview with Vitek Tracz

Essential for Science

By Richard Poynder

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A serial entrepreneur remarkable for being one of the few remaining innovators in the STM publishing industry, Vitek Tracz, chairman of the London-based Current Science Group, has, over the years, created a series of mold-breaking businesses under the Current Science Group umbrella, including Gower Medical Publishing, Current Drugs, and the Current Opinion series of journals. Convinced that all research must ultimately be freely available on the Web, Tracz has become a powerful advocate for open access. He was a key player in the development of PubMed Central, NIH's free literature repository, and, in 1998, he founded the first open access publisher, BioMed Central.

Q: Can you say something about your background?

A: I was born in 1940 on the border between Poland and Russia. That was when the Russians occupied the area. So you could say I was conceived in Poland and born in Russia without my parents moving; it was the borders that moved. My family then lived in Siberia for several years, returning to Poland in 1945. I grew up in Warsaw, where I studied mathematics.

Q: Your family subsequently emigrated to Israel?

A: Yes. We went to Israel when I was 21. I continued studying mathematics for a year there, but I wanted to make movies, so I decided to go to Europe to attend a film school. I came to England on my way to France and fell in love with London. I went to film school at the London Polytechnic and the Slade School of Art, and then got a fellowship at the Department of Art History in the University of Essex. All that time I was writing scripts and trying to get into the movie industry. It was a very hard industry to get into.

Q: You made a film about a queen of Sweden?

A: Much later I made an allegorical comedy that had a small part about a young queen of Sweden. Before that I made a lot of medical films, for which I started, with two friends, my first company: Medi-Cine. Some years later, after making my first and only feature film, I decided to stop making films and become a publisher, and I started Gower Medical Publishing. The aim was to publish high-quality, color medical atlases and slide collections, and to sell them both to drug companies as a marketing giveaway and through bookshops.

Q: Gower was founded with Tim Hailstone?

A: Tim joined me a year later from the medical publisher Churchill Livingstone. I was worried I didn't know enough, so I wanted someone working with me who really knew the business. We had a great time together.

Q: How did you fund your early business ventures?

A: We started Medi-Cine with very little money by getting early commissions from pharmaceutical companies for educational films for doctors. When we started Gower, we went to visit drug companies, told them we were going to make a fantastic book, and showed them a few sample pages. We then sold the books to them a chapter at a time, asking them to pay one-third in advance for each chapter. So the whole thing was virtually self-financing. In time it also became very successful.

Q: You sold Gower to Harper and Row in 1984, right?

A: Yes. I get bored quickly, and I get particularly bored once things are running smoothly. So, when we had the whole Gower machinery working, we decided to sell. By then I had an idea for a new type of journal.

Q: The *Current Opinion* review journals?

A: Right. I could see that while there were a lot of review journals around, they were all rather unsystematic in their approach. So I started two new journals aimed at providing a very comprehensive and systematic review of a subject. We would take a subject and break it up into its major sections—e.g., cardiology would be divided into hypertension, arrhythmias, and so on—and then devote each issue of the journal to one or two of those sections. Among other things, we would create a comprehensive bibliography and then have subject editors highlight articles of special interest, providing a kind of Michelin guide to the most important papers.

Q: A new type of review journal then?

A: Exactly. In fact, when I told my publisher friends what I was doing, they said: "This is terrible. You have invented the most cumbersome and complicated way to do a review journal, and you will not be able to charge much." Certainly it was a very, very expensive and difficult way to produce a journal. But the end result was just so useful

that a lot of people subscribed, and we went on to develop a range of *Current Opinion* journals in medicine and biology, which became very successful and are still published.

Q: In 1996, you moved into Web publishing and launched BioMedNet. What was the background to this?

A: By the time we had put the system in place for the *Current Opinion* journals and it was working smoothly, two things had happened. Firstly, doing them had made me much more interested in the biomedical field, and I decided I wanted to do some more biology journals. Secondly, with the arrival of the Web I became very interested in the idea of developing a community for biologists. So we sold the *Current Opinion* medical journals to Thomson but kept the biology ones and, in 1996, launched BioMedNet. The aim was to create an online publisher built around a community.

Q: After 2 years, you sold BioMedNet to Reed Elsevier for a large sum of money. The service then disappeared from view and was eventually closed. One publisher I spoke to recently characterized BioMedNet as a good example of how publishers misunderstood the Web. "Like the rest of us, Vitek got it wrong," he said, but then added, "Unlike the rest of us, he made money out of it." Is that accurate?

A: I don't agree. BioMedNet was far from finished when we sold it, so it was never proven whether we got it right or not. The reason Elsevier closed BioMedNet was not because the idea was wrong but because—nonsensically—it did nothing with it. One of the sad things with selling is that sometimes the buyers don't seem to want to use what they have bought.

Q: After selling BioMedNet you turned your attention to patent information. Can you talk me through that?

A: Sure. An editor from Academic Press named James Drake approached me and said: "I love the *Current Opinion* journals. You should do the same with patents." I said: "OK. Come and help me do it." So we started *Current Opinion* journals for pharmaceutical patents.

Q: The idea was to use the *Current Opinion* template on patent information?

A: Right. But we soon discovered that it is very hard to create a bibliography of patents. In medicine and biology we were able to extract a bibliography from Current Contents, which lists papers within weeks, and from MEDLINE. With patents, Derwent had an indexing service [World Patents Index], but its fast version was only published every 3 months, I think, with a few months delay. The main service took much longer.

So we did an exercise: We sent people out to patent libraries and had them physically look through all new patents and identify the 150 or so new pharmaceutical patents published every week. We soon discovered that we could do in a week what it took Derwent months to do. Consequently, we started six print titles—in different areas like cardiology, neurology, etc.—and sold subscriptions at \$1,500 a title. They just flew out of the door, and overnight we had a business that was growing really fast.

Q: That, of course, is how Derwent's founder Monty Hyams began.

A: Exactly. I admire him and Eugene Garfield of ISI very much. But Derwent had, by then, become a big organization and covered all patents. We were small and only interested in the pharmaceutical patents. After 3 months, Derwent responded by taking three of the six subjects and copying everything we were doing—but charging just \$300 a title instead of our \$1,500.

Q: How did you respond?

A: I went to see the CEO of Derwent and said: "I know you are charging to kill us, but you don't need to sell at \$300. Let's combine forces." He replied: "We so admire what you are doing: You are like we were 15 or 20 years ago. But I have to kill you; you are invading our patch—in fact, you are trying to mine our gold seam. We must get rid of you as soon as we can."

So we responded by combining all six titles into one, charging \$1,250 for all of them together, and converting everyone to the single title. Derwent couldn't match it because it was too difficult for them to do six titles. In a short time that business had recovered.

Q: You then developed the Investigational Drugs Database?

A: Yes. The attack from Derwent made me interested in the whole pharmaceutical information services area, and we started visiting companies to find out how they were using our journals. We quickly realized something interesting: Pharmaceutical companies were buying all the information services available. They were buying the patent information service from us. They were buying from Derwent. They were buying literature services from a third company, a meeting report service from someone else, and a financial analysis from yet someone else. They were buying all these slices of the cake, and then spending a fortune trying to combine everything into a single database, which is what they really needed. But they were finding it extremely difficult—a supplier would suddenly change their data format, for instance, and they would sit wringing their hands, saying, "This is impossible."

So we said, "There are six slices and we must do every slice—and we must do it better than anyone else." And we had to build a single database from the start, and we had to do it on a platform that would allow people to integrate their

own data. I was sure most pharmaceutical companies would buy it because doing it themselves was too hard. That was the start of Current Drugs and the Investigational Drugs Database.

Q: A classic case of listening to your customers and providing what they needed. It sounds easy.

A: Actually it was very, very hard to get it all working together. Ian Tarr, who is incredibly talented, headed the business. It was also an enormous investment. When we started, we thought we could do it in 2 years—but it took 7 years. Every year our finance director would come to me and say: "Vitek, I beg you to stop it. Last year you told me this year would be the turning point, but you have simply lost more money. This is going to destroy you." But once it came together, the product was taken up very fast.

Q: And you sold Current Drugs to Thomson in 2002 for £85 million?

A: That's not quite right, and I don't want to talk numbers. The point is that the culture of our place is that we like to do new things. As soon as something works, we try to sell it and use the money to do some other new things.

Q: In 1998 the new thing was to create the first open access publisher, BioMed Central. Why BioMed Central?

A: It all began when I visited David Lipman at the U.S. National Institutes of Health (NIH) for the first time. David is a remarkable man whom I had admired for a long time. He is a great scientist; runs one of the most important bioinformatics institutes (NCBI); [and] is responsible for PubMed, GenBank, and much more.

While I was talking to David, I had an idea that had been cooking in various vague ways for a while. I said: "I think perhaps the time has come to create a central repository for research papers. The benefits of having everything available in one place, without any access restrictions, would be enormous. Moreover, with the Web technology available today, publishing can potentially happen independently of publishers. If authors started depositing their papers directly into a central repository, they could bypass publishers and make it freely available."

I also said: "I think you are the only person in the world who can do it because you have the infrastructure and you have PubMed. NIH has the means, the technology, and the know-how to run a big database like that, so I believe you should do it."

Q: How did Lipman reply?

A: He said it sounded like a really interesting idea, but it was not for him. "The genome is happening, and we have millions of other things to do too," he said. "Let someone else do it." But a month later he sent me an e-mail. "I can't stop thinking about it," he wrote. "I think you are right—we must do something. I am going to talk to Harold Varmus [then director of the NIH] about it."

Q: This was the seed of Harold Varmus' proposal to create E-biomed?

A: I think so, one of them. Pat Brown's ideas on pre-prints were another important influence on all of us. During our discussions, however, it became clear that a large funding organization like NIH could not be seen acting as a publisher as there would be a conflict of interests. So I offered to support the repository by starting to publish virtual journals in all areas of biology and medicine, and placing all the articles in the open repository. That was the origin of BioMed Central.

It was proposed, by the way, that all the journals listed in MEDLINE and EMBASE be invited to deposit their papers in the repository, and that anyone else could start a journal—so long as three people on the editorial board were grantees of major granting institutions.

Q: This repository was eventually launched as PubMed Central?

A: Right. Also, a little later, Pat Brown, Harold Varmus, and Mike Eisen sent out the open letter that started the Public Library of Science. Lots of people signed the letter. There was a great swell of opinion for this new way of publishing research results, which has become known as open access. It seems there was a lot of anger about the greediness of publishers. For me, however, that was never an issue. After all, it's the legitimate job of commercial publishers to make profits, and I see myself as one of them. For me, the issue has always been simply that both science and society will greatly benefit from open access, and that it offers an exciting new commercially sustainable model of science publishing that I wanted to experiment with. After all, one of our goals in life is to do something interesting, to avoid boredom at all cost.

Q: And the development of the Web means that the logic of open access is inescapable?

A: I think so. But it is not just that the Web has made it possible: Biomedical science simply can't function efficiently anymore without open, unrestricted access to research results. Access to past findings is of the essence in doing science, and research is becoming more data-rich so the results it produces are increasingly database-like. We are seeing, for instance, research papers containing databases and being linked to databases, and it is becoming simply impractical to work without the ability to easily gather and manipulate the data. We have seen how important this is with the genome. As a consequence, it is important to completely rethink the way science reports its findings, and this is a big challenge to science publishers as well as to scientists.

Q: The big challenge presumably lies in creating a business model capable of supporting open access publishing?

A: When we started BioMed Central, we didn't know what the business model would be. We believed the data would have to be free, but it also became clear that—for the moment at least—authors couldn't place their papers in the public domain without some processes that cost money. What was also clear was that authors are more interested in publishing than readers are in reading. We also knew that authors have always been prepared to pay for having their papers published by paying page charges and paying for color pictures, etc. So we said: "OK, we will turn the current model upside down and offer the research articles free to readers and charge for services to authors. We will take their papers, mark them up, find referees to review them, and generally act as an intermediary." Of course, the charges are not really to authors personally, but rather to the funders of the research or the institutions where the authors work. We soon realized that such a business model could be very effective.

Q: Currently, however, neither BioMed Central nor the Public Library of Science makes money, and some maintain that open access publishing will never be financially viable. When you gave evidence to the U.K. Select Committee into scientific publishing, you said that you expect to be in the black in 2006. Is that still the plan?

A: Yes. We think we need about 2,000 to 2,500 papers a month to break even. We estimate that we will have around 2,000 by the end of next year. While open access publishing will never be as profitable as the current system of selling subscriptions, we are confident it can and will be profitable.

Q: Another challenge is that, currently, very few authors are choosing to publish with open access publishers?

A: You are completely wrong to say that. In fact, open access is growing much faster than anything I have ever experienced in my time in publishing, and it will continue to grow very fast as more and more people find out about it.

Q: Can you give me some figures to demonstrate that?

A: Submissions to our journals are now running at more than 700 papers a month. A year ago, this figure was 300; 2 years ago, it was about 120. So it is more than doubling each year. We know that authors who have published open access once publish that way again. And they tell others. Today, around 1 percent of papers are published open access. I believe that when this becomes more like 5 percent, we will reach a tipping point. Suddenly everyone will start knowing someone who has done it and for whom it worked well, and at that point the rate of growth will increase rapidly.

Q: A further complication is that the open access movement has forked. While OA publishers like you advocate OA publishing (the so-called "gold road" to OA), supporters of the "green road," like Stevan Harnad, argue that it is sufficient for authors to continue publishing in traditional subscription-based journals, but to then self-archive their papers. Does Harnad have a point?

A: I do not think so. Self-archiving is, of course, very desirable, but the issue is quite simple: Publishers are not really going to allow authors to self-archive in an easy way, and authors are not going to do it unless it is completely painless.

Q: I'm told that 92 percent of journals do allow self-archiving?

A: They say they allow it, but publishers have merely created the pretense of allowing it. They don't really. They say they allow self-archiving, but authors can't just take their published papers and archive them. They have to use their original manuscript, without any of the corrections and changes made by the publisher. They have to mark it up themselves, and they cannot use the illustrations created or amended by the publisher. In practice it is really quite difficult to reproduce the published paper. If self-archiving were so easy, why isn't it happening? Because, in practice, self-archiving is impractical. That said, for those who want it, we support self-archiving by offering to help institutions create repositories.

Q: The proposal to request that all NIH-funded research is made freely available in PubMed Central now looks certain to go ahead, but is there a danger it could still be watered down or simply prove ineffective?

A: I think it will succeed. It is a good and sensible proposal, and it is reasonable to give publishers a 6-month gap before published papers are posted on the Web. Publishers do need time to prepare themselves for the coming changes. But I believe it will be fought hard as there is a lot of money at stake.

Q: So how do you see science publishing developing over the next 10 years?

A: It will go through a very profound transformation. In fact, we will hardly recognize it 10 years from now. It will become less dependent on things like peer review and selection, for instance, and it will become a much more seamless and continuous process.

Q: Can you say a little more about this transformation?

A: Science is about finding what and how things happen and making these findings visible. It is made up of two things: the findings themselves and the interpretation of these findings. A good example is a clinical trial: Somebody takes a group of patients, gives half of them this and half of them that, and then compares the results. They then

have the data and make their interpretation of that data, which they publish. Others then can interpret the data differently. Today, what we mostly see is the interpretation of the data—the data itself is not published. I think the data will become more visible, and people will share the data in the way they did with the genome. As a consequence, the whole process of peer review will increasingly be seen to be irrelevant, ineffective, and too time-consuming. Pat Brown's call for publishing without prior peer review will come true. Making the data visible will become the single most important thing. And you don't really need publishers for that—you need tools and software development.

Q: So what does this mean for traditional publishers?

A: It doesn't matter what it means for publishers. It is not written in the stars that we have to have science publishers, and it is not a moral imperative for us to defend them. That said, while science publishing faces a crisis today, I believe there is a very big role for publishers in the future. It just won't be centered on facilitating the publication of research results.

Q: How do you mean?

A: It is not practical for scientists to do anything that requires a strong editorial overhead, so all the things scientists cannot do themselves will need publishers—review journals, for instance. Above all, however, I believe it means highly specialized, editorially intensive databases—databases that take data, usually publicly available data, and put it together in a structure that makes it more useful and understandable by organizing it and adding commentaries and analysis. So, where today you have thousands of journals sold on subscriptions, in 10 to 20 years there will be thousands of editorially intensive databases also sold on subscriptions, many of them probably sold by existing science publishers.

Q: You are saying that subscription remains a viable model for the future?

A: I cannot think of a better model.

Q: How does that fit with the principles of open access? If science requires that research be freely available, subscriptions will surely work against that by limiting access?

A: Not everything has to be free: The original research findings must be freely available to all because you can't do science without research findings. In fact, research findings are the only things that must be free.

Q: So the open access, author-pays business model is only relevant in relation to the primary activity of helping researchers put their findings into the public domain?

A: Yes. Open access is a service, not a subscription allowing access. Moreover, that service will become a smaller and smaller component of the publishing business. More and more of what we do for authors today they will be able to do for themselves in the future, and as we develop more tools to allow them to do it themselves, what we charge them will be less and less.

Q: Open access publishing, therefore, is likely to prove a short-term business opportunity for publishers. The future lies in providing value-added databases?

A: Maybe. However, we publishers must remember that the issue is not what is good for publishers, but what is good for science. It is neither in the interests of funders nor of authors not to embrace open access. It is only in the interests of traditional publishers to continue the status quo. If some publishers find that there is no money in publishing, they will do something else. The central point in the open access debate is that it is essential for science and beneficial for society. That is what makes it inevitable.

Richard Poynder is a U.K.-based freelance journalist who specializes in intellectual property and the information industry. His e-mail address is richard.poynder@journalist.co.uk.
